البحث الخامس(منفرد)

Title: Exact Inference fora Simple Step-stress Modelwith Generalized Type-I Hybrid Censored Datafrom the Exponential Distribution

Authors: A. R. Shafay

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Abstract. In this article, the simple step-stress model is considered based on generalized Type-Ihybrid censored data fromthe exponential distribution. Themaximum likelihood estimators(MLEs) of the unknown parameters are derived assuming a cumulative exposuremodel. We then derive the exact distributions of the MLEs of the parameters usingconditional momentgenerating functions. The Bayesian estimators of the parametersare derived and then compared with the MLEs. We also derive confidence intervals forthe parameters using these exact distributions, asymptotic distributions of the MLEs,Bayesian, and the parametric bootstrap methods. The problem of determining the

optimalstress-changing point is discussed and the MLEs of the p-th quantile and reliabilityfunctions at the use condition are obtained. Finally, Monte Carlo simulation and somenumerical results are presented for illustrating all the inferential methods developedhere.